

Co+living Design: Ageing in Place in a World of Inequalities: How to Design Healthy Cities

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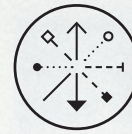
Co+ living Design

Participatory design simulation gamification for built environments in age-appropriate, inclusive and universal design, multi generational, and co-living buildings without limitations'

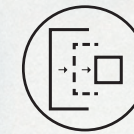
contents

- ▶ INTRODUCTION
- ▶ LEAD UP RESEARCH
- ▶ METHODOLOGY
- ▶ RESULTS AND DISCUSSION

Variety



Adaptability



Flexibility



'Co+' is a research and development project to prepare the realisation of a demonstration that showcases affordable housing in modular building technology for Seniors. The research and development phases in 2017 and 2018 result in the following government reports:

- ▶ Co+1 'Co-living Design tool Kit' A tool-set for age-appropriate housing design parameters for Housing | Department of Communities (DCCO) | Government of Western Australia;
- ▶ Co+2 'Co-living Community Forums' Community engagement workshops to co-design, showcase and to promote the developed modular housing prototypes (H+) within the Urban Living Strategy for Housing | Department of Communities (DCCO);
- ▶ Co+3 'H+ Co-living dwelling complex' Urban living in age-appropriate communities (program, diagrams, models and plans for a case study area based on discussions with DCCO).

This project will apply previous research of the AUDRC on Affordable Housing, Modular Building Systems, Community Participation, and Housing Identity for Housing | Department of Communities (DCCO) | Government of Western Australia:

- ▶ H+ [modular housing system] housing modules individually and for multi- residential urban living (2015);
- ▶ C+ 'My future home' This report contains the approach, design and result of the interactive demonstration 'My future home' community charrette, held at the B-Shed/Fremantle Ports, with the City of Fremantle, Housing Authority, AUDRC, and further contributions by the Department of Water, the Water Corporation, and Landcorp (2016).

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9 780648 371526



Government of Western Australia
Department of Communities
Housing



Design © Dr. D. A. Ottmann 2019
by AUDRC 2017

introduction



Pelotas/Brazil
-31.77194, -52.3425
Cfa

Perth/Australia
-31.95224, 115.8614
Csa

Bond University
Gold Coast/Australia
-28, 153
Cfa



2019

Co-living Design ©

Introduction

- ▶ Perth/ population 2,016,415 (2019) Density/ 295.5 p/km² (3 p/ha)
- ▶ Poverty/ 13% Adults 17% Children
- ▶ Declining rates of home ownership are contributing to housing stress as more older people are renting or paying off mortgages beyond retirement age> Review of Australia's retirement income system needed.
- ▶ Australia's Age Pension settings assume most people will own their own home after retirement. With pension rates not keeping pace with rising housing costs, the private market is struggling to respond. This is creating **increased demand for affordable homes** that can support ageing in place

ageing projections

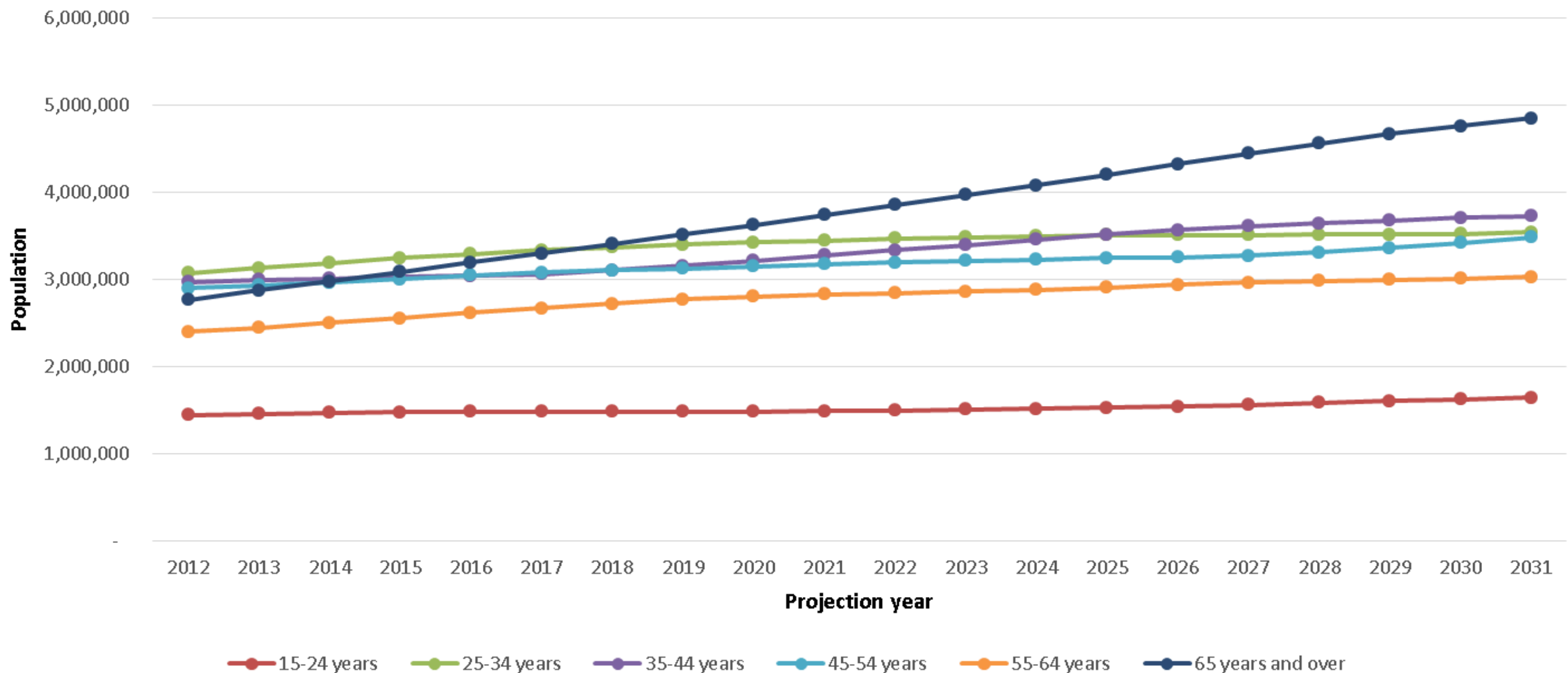
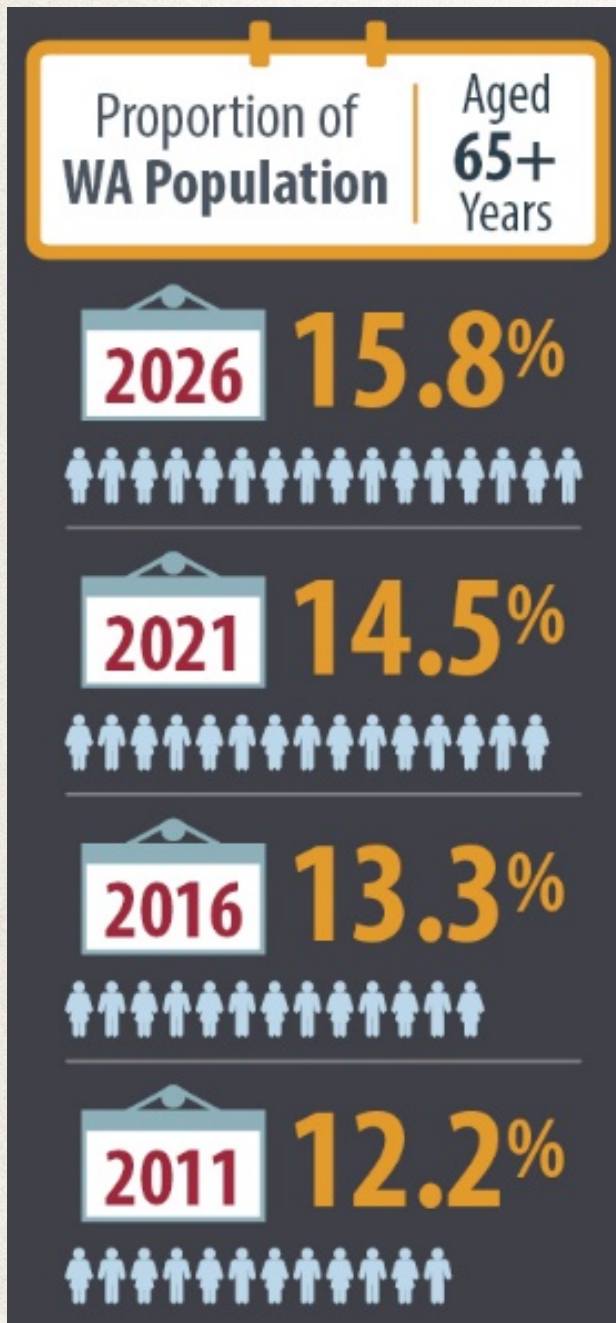
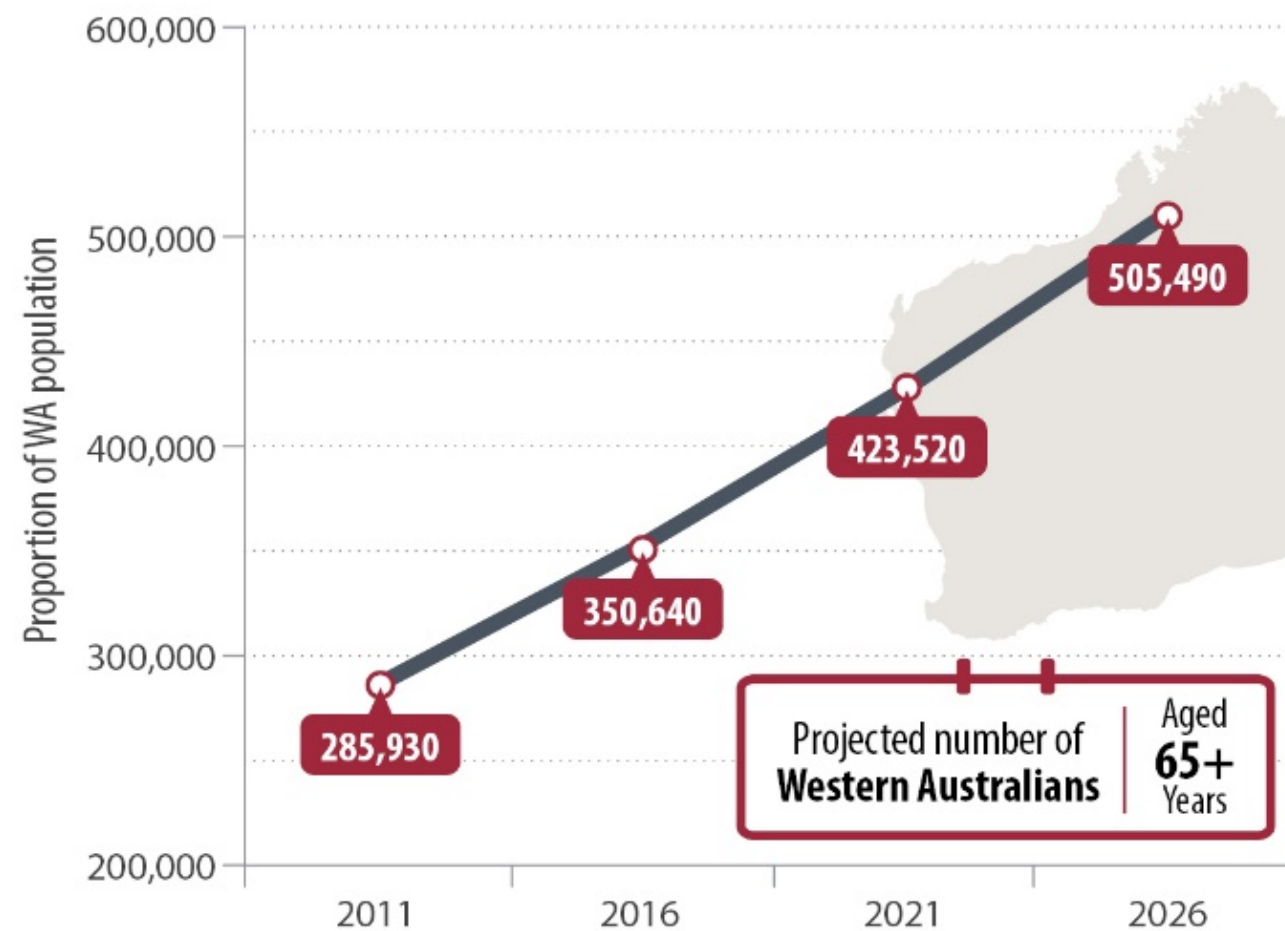


Figure 1: Projected population count, 2012–31, according to ABS projections, by age range

challenge



Projected number of Western Australians aged 65+

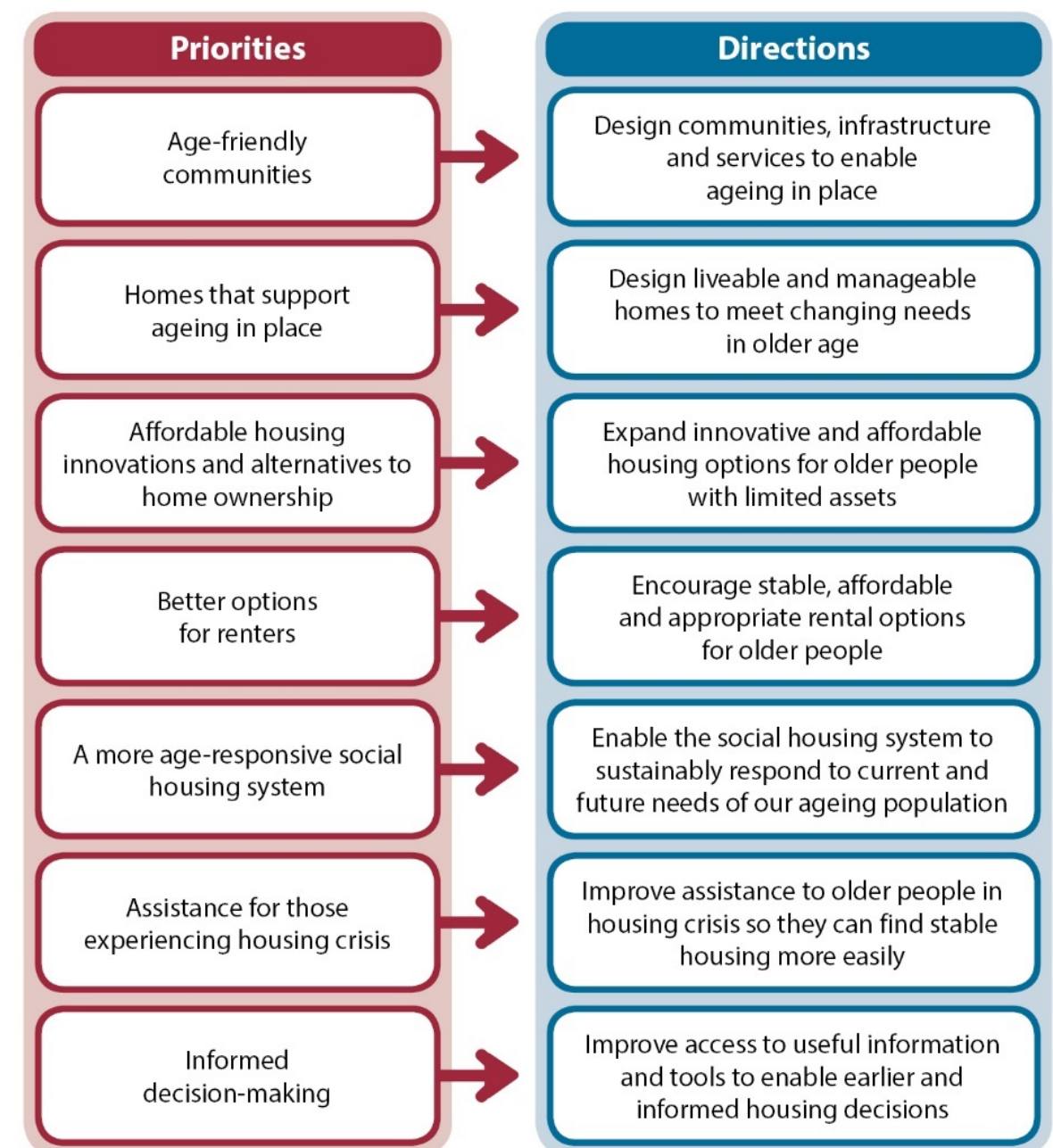


Source: Department of Planning 2015

seniors housing strategy 2019-2023

- ▶ ageing
- ▶ with
- ▶ choice

Led by the
Department of Communities
and backed by
cross-government action,
Ageing with Choice
identifies seven priorities
and directions for reform.



lead-up research

2015-2018

H+ Housing System (2015)

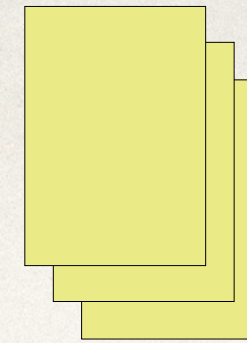
H+C Community Charrette (2016)

>>> **Co+**living Design' (2017)

... participatory design simulation gamification for built environments in age-appropriate, inclusive and universal design, multi generational, and co-living buildings without limitations.

Housing +: Community Charrette
"My future home"

Introduction
Design and Methodology
Discovery Path stations
Symposium
Charrette Conclusion



H+ C

H+ system tool-kit



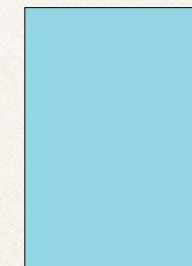
H+ Cx1

Community interviews



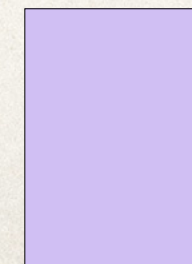
H+ Cx2

H+ Funky models



H+ Cx3

Housing psychology



H+ Cx4

H+ Research Overview

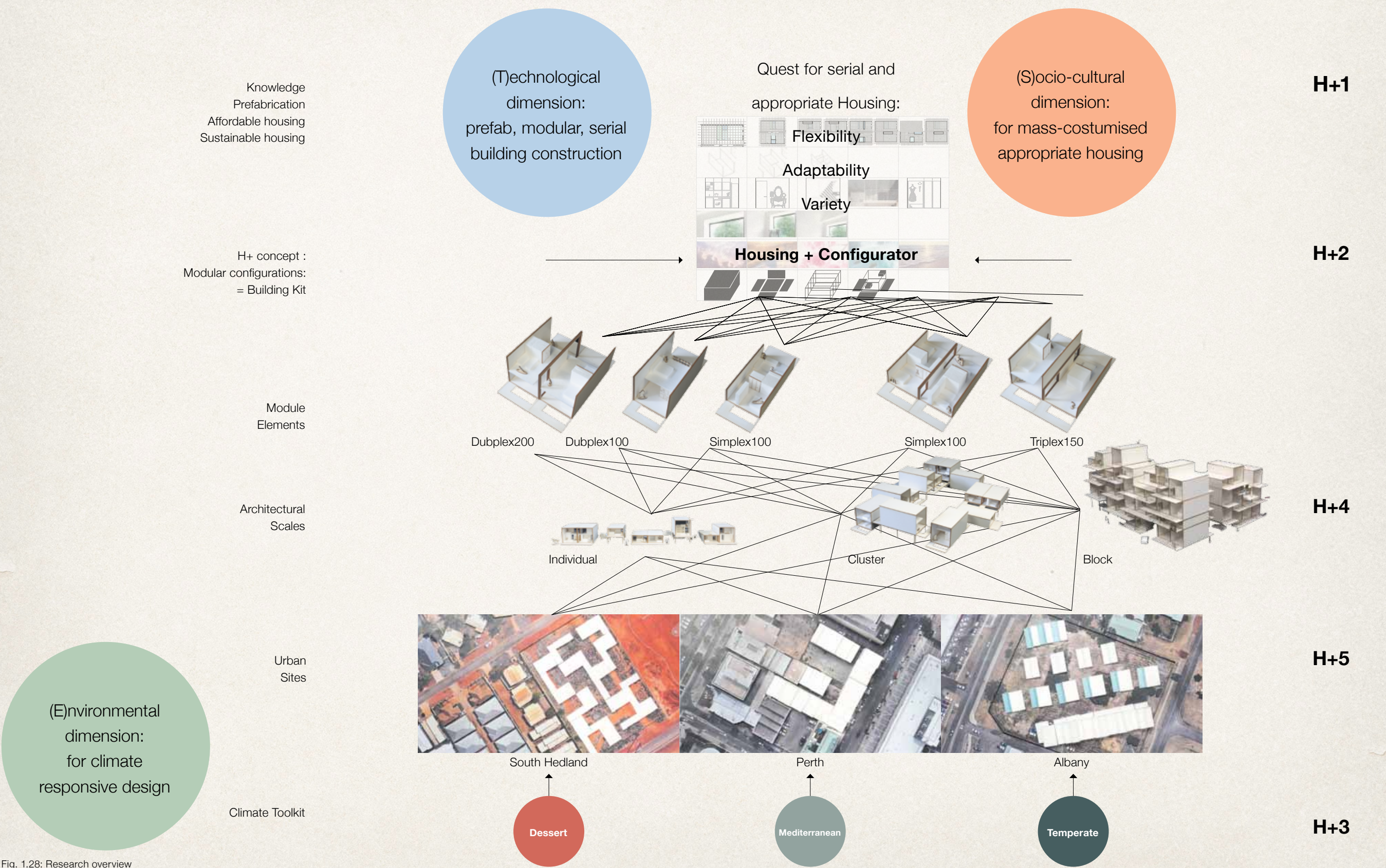


Fig. 1.28: Research overview

Co+ overview

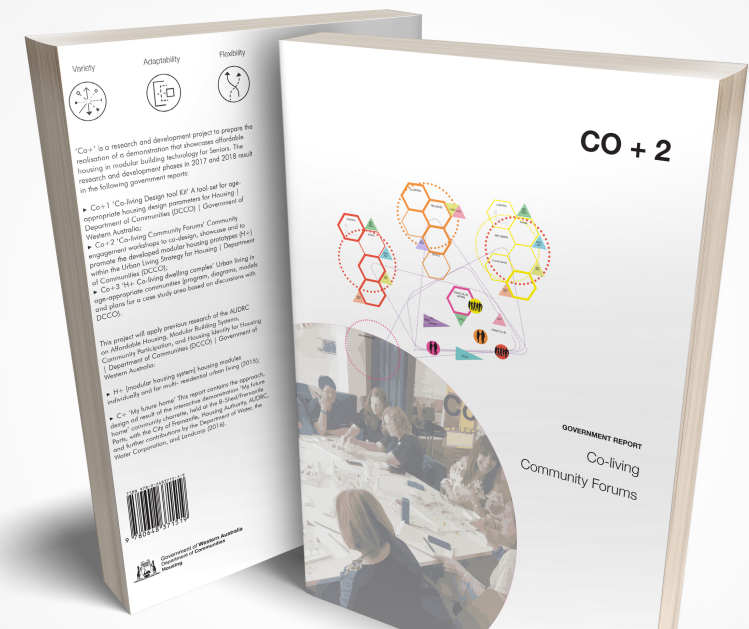
Co+1 (literature compendium integrative
design toolkit)

Co+2

‘Co-living game’ design participation

Co+3

architecture test scenarios



Co+1

Co-living Design Toolkit



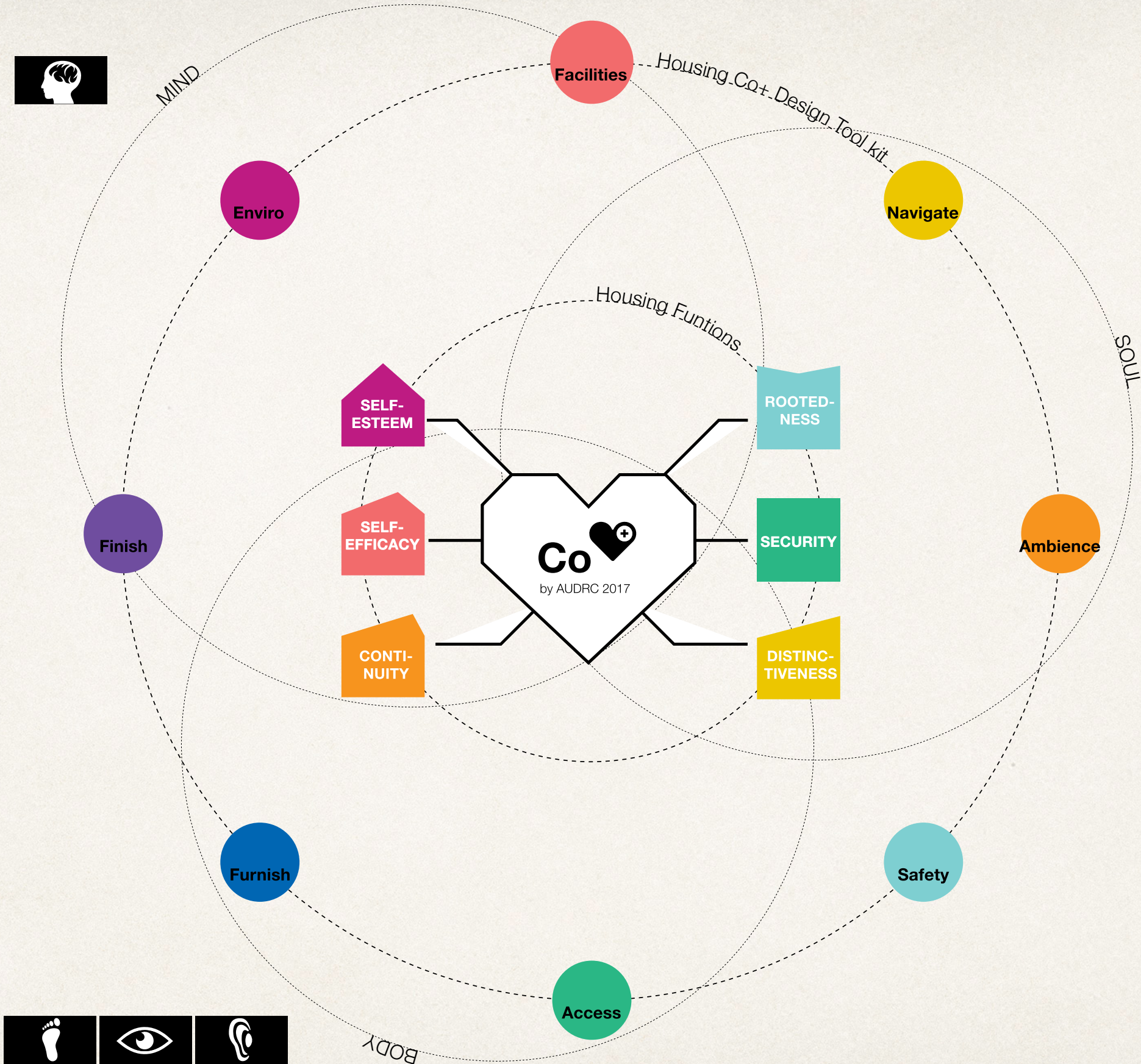
IMPACT LOGIC

Co+ Design Tool Kit



for buildings without limitations
= usage relief for people:

- ▶ with visual or hearing impairment
- ▶ with motor (motion) restrictions
- ▶ using mobility aids and wheelchairs
- ▶ with cognitive impairments
- ▶ who have age related mobility issues
- ▶ who are still young (children)
- ▶ with prams or luggage.



ENVIRONMENT

FACILITIES

AMBIENCE

NAVIGATION

ACCESS

SAFETY

FURNISHING

FINISHING

social

environmental

technological

These colours indicate the categories and chapters of the design tool kit and relate to

- environmental;
- social; and
- technological aspects.

Certain features may contribute

- to the 'soul' of the co-living community and/or support limited user capabilities

- memory
- physical
- visual
- audio



Urban Living in age-appropriate communities | Co + 1 DESIGN TOOL KIT

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Planning for people with limitations

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Design Key Principles

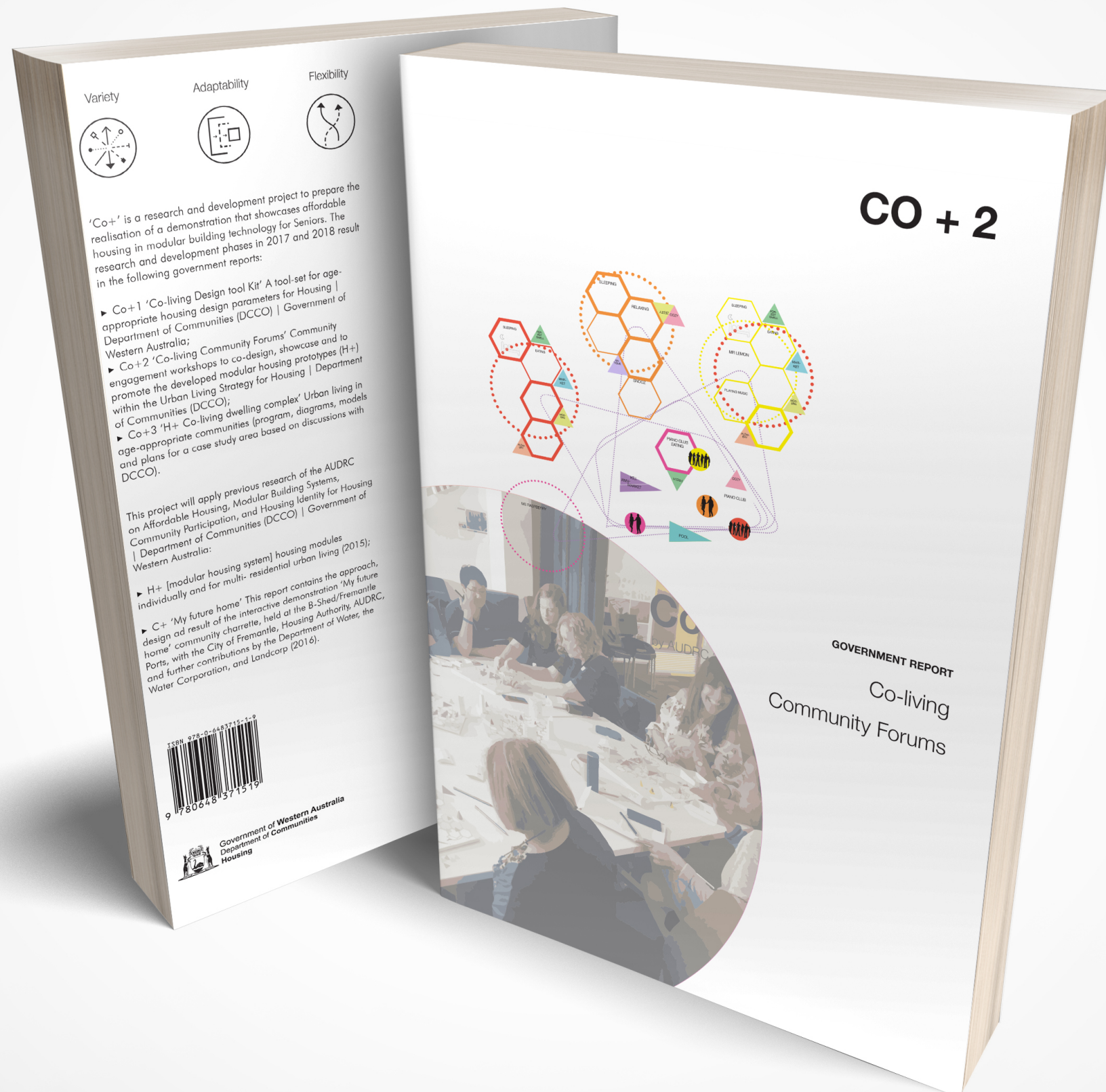
Definitions

Notes

References

Co+2

Co-living Community Forums



- ▶ cooperative design measures through a structured gami-fied approach
- ▶ validation through findings in research studio 'Housing +' and 'My future home'
- ▶ target groups included but were not limited to elderly, impaired, younger, mixed intergenerational living, senior living, homeless, and carers.
- ▶ OUTPUT/ Co+1 Co+2 and Co+3

research inquiries

- What Activities are preferred in private, semi-public, and public?
- What (semiotic) Ambiance descriptions are preferred ?
- What shared spatial and functional features are preferred ?
- Where (spatial function) and When (time of the day) are people interested in sharing and negotiating semi-public public domain.

CO+FORUM 04

CO+ FORUMS

Co-living Game results

Games 9, 10 and 11
171006 Church Community

Title(s) of the gameboard(s):

- ▶ “Heavenly Paradise”
- ▶ “Shalom”
- ▶ “Happy Living”

These three games were played at in a Church Parish Hall in the North East Suburb of Perth. The participants were recruited to play the game through a community informant. A total of 12 people participated in these three games. This session was the second session to be played out in the community.

The participants gathered in the Parish Hall after morning mass. All the participants knew each other well and were regulars at the morning mass. There was a strong sense of familiarity evidenced by the manner in which they gently and sometime not so gently chided each other. It took a while for people to gather as the main informant was still praying.

“Where is she” we were asked “always late”. Given that the hall was booked for an hour and a half, and half an hour had passed gathering people and getting organised, the research team had an hour in which to get people to play the game. Tea coffee cake and biscuits were provided by the research team.

The rules of the game were explained and the research project was explained in simple terms. It is interesting to note that the participants were able to “own” the game and see the opportunities it presented in developing new imaginations.

In the follow up discussion the participants were able to take away possibilities. “We need to tell father about buying that land next to the church .”. It was of interest to the researchers to note that in the process of playing the game not only were new possibilities created on the game board but possibilities that could be taken into real life situations.



Fig. 3.4.1 Co+ Forum 04 in action images

Fig. 3.4.2 Co+ Forum 04 group data

| Game Set # | Group Name | date and location | Player individual data | | | | | | | Group Outcome/ Feature ranking | |
|------------|---------------------|-------------------|------------------------|--------|-----|-----------------------|---|---|--|--------------------------------|--------------------|
| | | | Colour | | Age | lives with... | | likes.. | thinks... | Stage 1 (Top 7) | Stage 2 (Top3) |
| # 9 | "Happy Living" | 171006 Church | Lemon | male | 79 | Wife | 1 | Live a long healthy, peaceful life with my wife | "Live well and always consider others needs too" | Community Centre | Prayer Room/Chapel |
| | | | Orange | | | | | | | Playground | Library |
| | | | Strawberry | male | 66 | Cousin | 1 | Garden | "Giving a helping hand to people in need" | Fitness | Urban' (community) |
| | | | Raspberry | Female | 78 | Husband | 1 | Have a clean bill of health and be happy | "To live peacefully and to be happy. Live what I can today, tomorrow is another day" | Medical centre | |
| | | | | | | | | | | Market | |
| | | | | | | | | | | Music Room | |
| | | | | | | | | | | Library | |
| # 10 | "Shalom" | 171006 Church | Lemon | female | 73 | Two ladies and sister | 3 | Pray and got to zumba/ gym | "Live simply and comfortably" | Community Centre | |
| | | | Orange | female | 64 | Husband | 1 | Sing | "love, live, laugh, share and to ...one another" | Medical centre | |
| | | | Strawberry | female | 70 | Husband | 1 | Walk, gardening, working | "Doing what I can to the best of my ability" | Market | |
| | | | Raspberry | female | 63 | Mum and brother | 2 | Shop | "Religion- Going to church" | Meet and chat Church | |
| # 11 | "Heavenly Paradise" | 171006 Church | Lemon | female | 80 | Alone | 0 | Dance | "Live and let live" | Community Centre | |
| | | | Orange | female | nil | Alone | 0 | Gardening | "Be independent as long as possible" | Fitness | |
| | | | Strawberry | female | 73 | Husband | 1 | Cook | "Cook and feed others who enjoy my food" | Medical Centre | |
| | | | Raspberry | female | 69 | Husband | 1 | Live in a one bedroom apartment | "Meet and socialise with people" | Market | |
| | | | | | | | | | | meet and Chat | |
| | | | | | | | | | | Roof Garden | |
| | | | | | | | | | | Community Garden | |
| | | | | | | | | | | Shared mobility | |
| | | | | | | | | | | Community Kitchen and BBQ | |
| | | | | | | | | | | Music Room | |
| | | | | | | | | | | Library | |
| | | | | | | | | | | Prayer Room | |

► Comments:
While the women in the group were fiercely independent and had generally lived in their homes for many years and didn't want to change their way of life, they also mentioned there had been an initiative by the church to introduce 'co-housing' type living, where the friends would buy into a home in a shared apartment block in community living, though hadn't thought about what they would share rather than just the proximity to close friends they see regularly anyway. "If it's with people you know- your community" they were willing to have a one bedroom self contained unit - recognising they don't need the extra land but to live with a community of friends. They indicated that it was only once they were completely incompetent - when they couldn't look after themselves - would they 'succumb' to a retirement home "I want to

live on my own for as long as I can" "I don't want to move out". They wanted to age in place. This idea of community - draw strength from the church community - rely on the church community more than family (who would live interstate, have their own lives) whereas previous generations the children would care for the parents (especially in Singapore one participant mentioned).

► Pros
Mr Strawberry: desire for 'medical centre', out of convenience and desire to live independently, for as long as he is able. Wants easily accessible medical services (or other support) as his needs change over time; Multi-purpose commminty centre', a place to interact with neighbours and wider community; 'playground' for grandchildren;

Ms Orange lives alone - likes shopping, visiting friends, has been in the same home for 40 year, 15 years as widow "I'm not going to change now" - does miss the companionship - she uses the computer,iPad, internet for email, facebook, google; Community centre could be used for events - Christmas Day, Mothers Day, Seniors Day, lectures and talks. They talk about the Good Shepherd community and their longevity in the same place "We were here before the church was built!" Making the point that they would be "lost" without the church community - that they can't rely on family anymore. One noted that a social space would be good "social, yes, I'm a social butterfly!" and that they want a space which is "fresh - nice, clean, comfortable".

► Cons

Mrs Raspberry: highlighted cultural/ 'lifestyle' differences Australia/Malaysia ie. "In Malaysia...people look out for each other....we share...pass food and other things... over the fence...(on visiting neighbours) "we don't have to ring beforehand we just drop in/by";

Discussed idea of community laundry - "definitely not - if I'm able to do it myself I will" but made the point jokingly that the community would need a funeral director! Made the point that 'when I'm old' (90-100years) I might be too old to garden, but would definitely need a prayer room.

► Forum 04 agreed and negotiated shared features per board (Stage1) and as collage (all boards together; Stage 2):

Stage 1
Community Centre, Fitness, Medical Centre, Market, Meet + Chat, Roof Garden, Community Garden, Shared Mobility, Community Kitchen + BBQ, Music Room, Library, Prayer Room, Playground, Medical Centre

Stage 2
1. Prayer Room/Chapel 2. Library 3. 'Urban' (community)

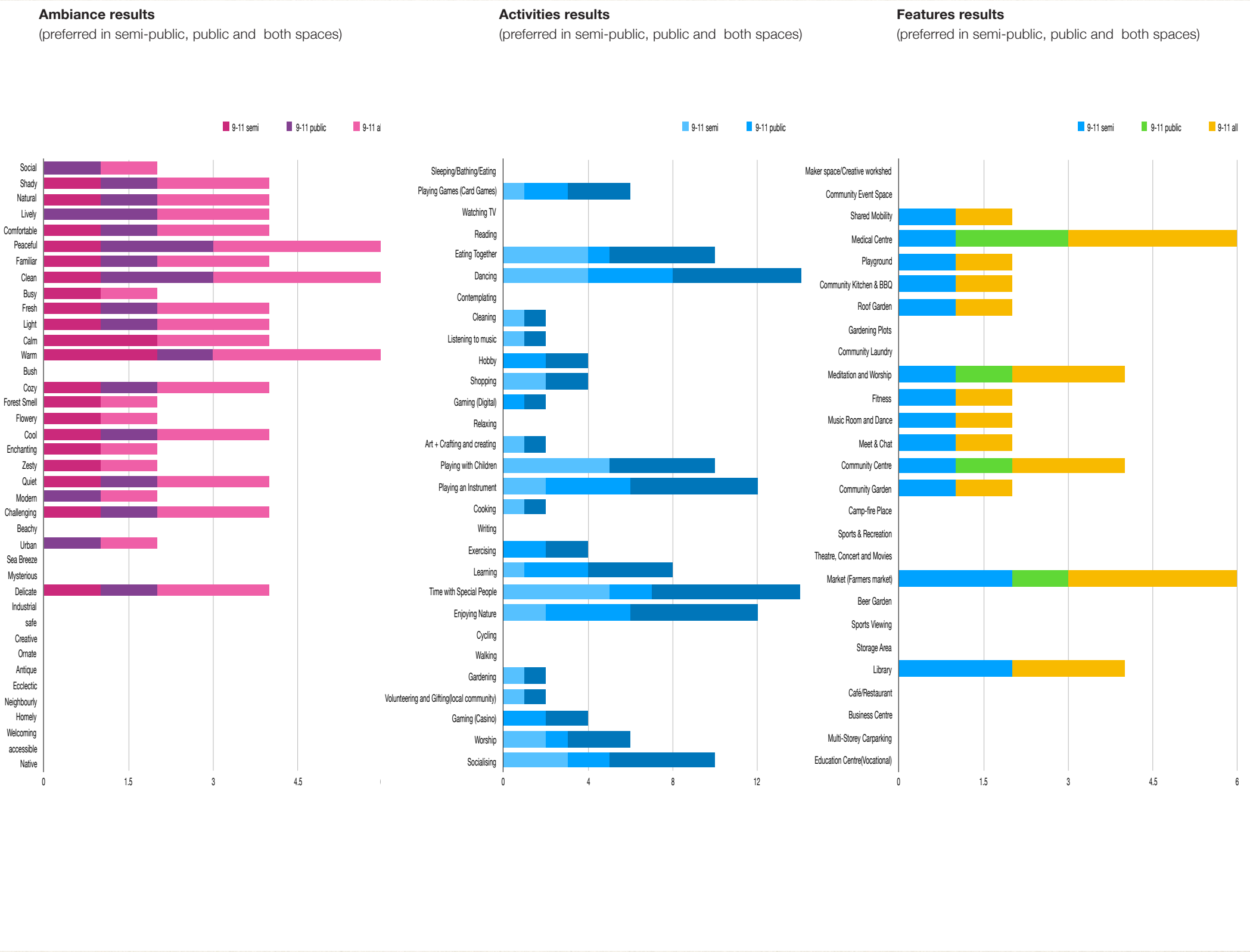
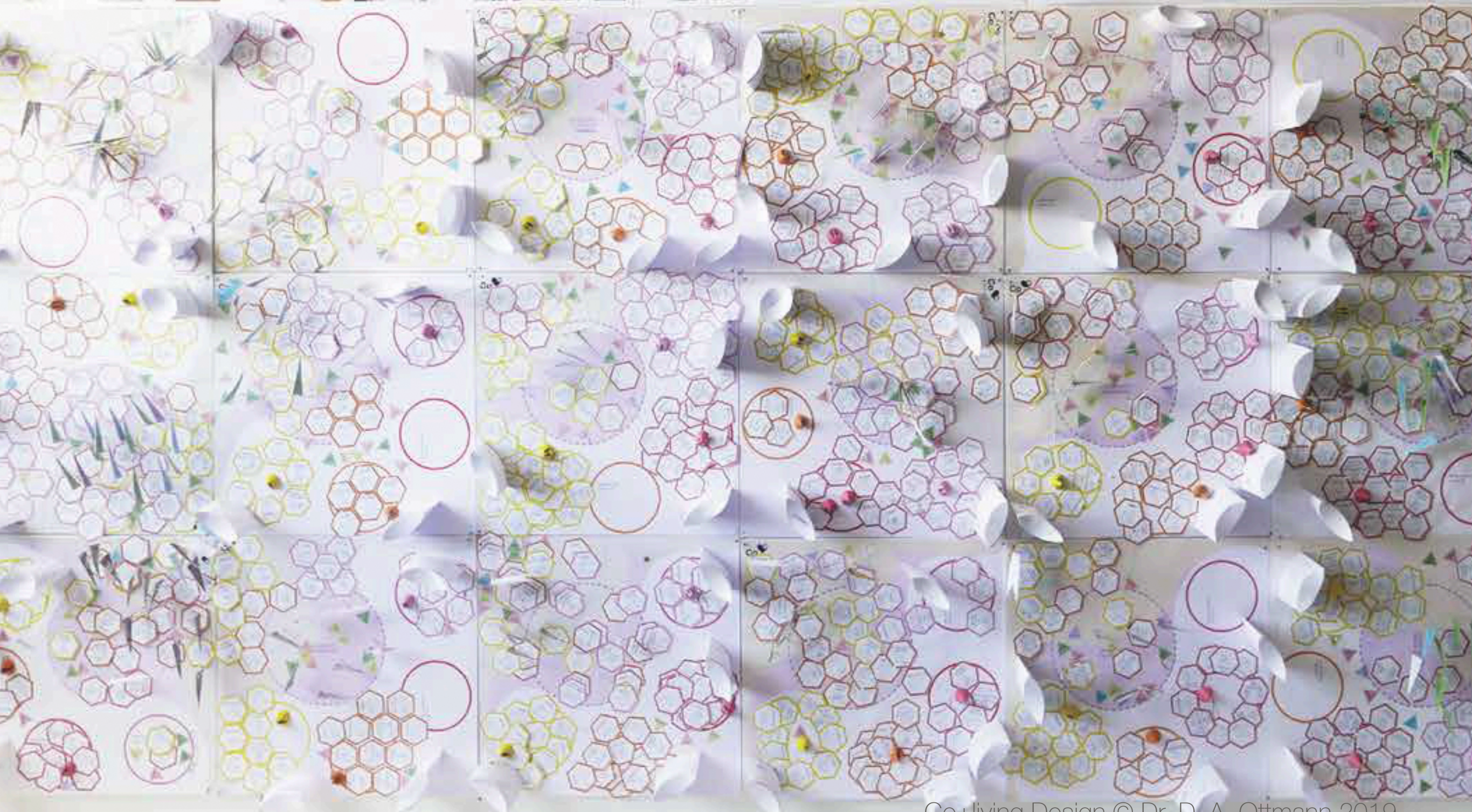


Fig. 3.4.3 Co+ Forum 04 results



4. CHARETTEFINDINGS

Apart from the evaluated facts on preferred Features, Activities and Ambience as depicted in graphs to the right general observations good be made:

- Seniors groups don't think of thimbles as too old and think of a later stage when they are old
 - like the idea of a collective (e.g. a church) buying ground to open a cooperative living environment
 - want to stay in community
 - are often socially isolated and hence like idea of supportive community
 - sacred spaces for worshipping/mediation come up often
 - need for a variety of different spaces to socialise but also to individually retreat
 - slowing down
 - playgrounds as social connectors
 - inclusive and accessible spaces
 - awareness for raging in place models e.g. sharing for caring households
 - the simulation setting was often understood of the real life report instead of creatively scenic playing abstraction
 - the understanding of size of 'community' ranges

Ambiance overall results
(preferred in semi-public, public and both spaces)

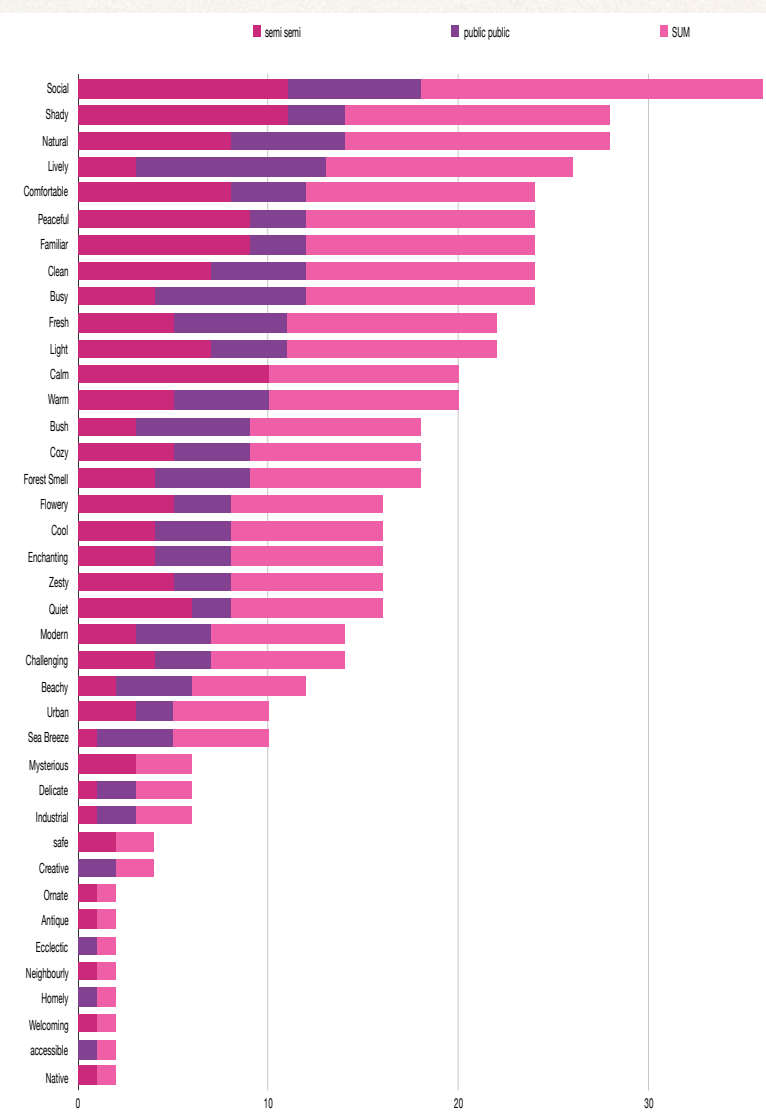


Fig. 4.1 Ambiance overall results

Activities overall results
(preferred in semi-public, public and both spaces)

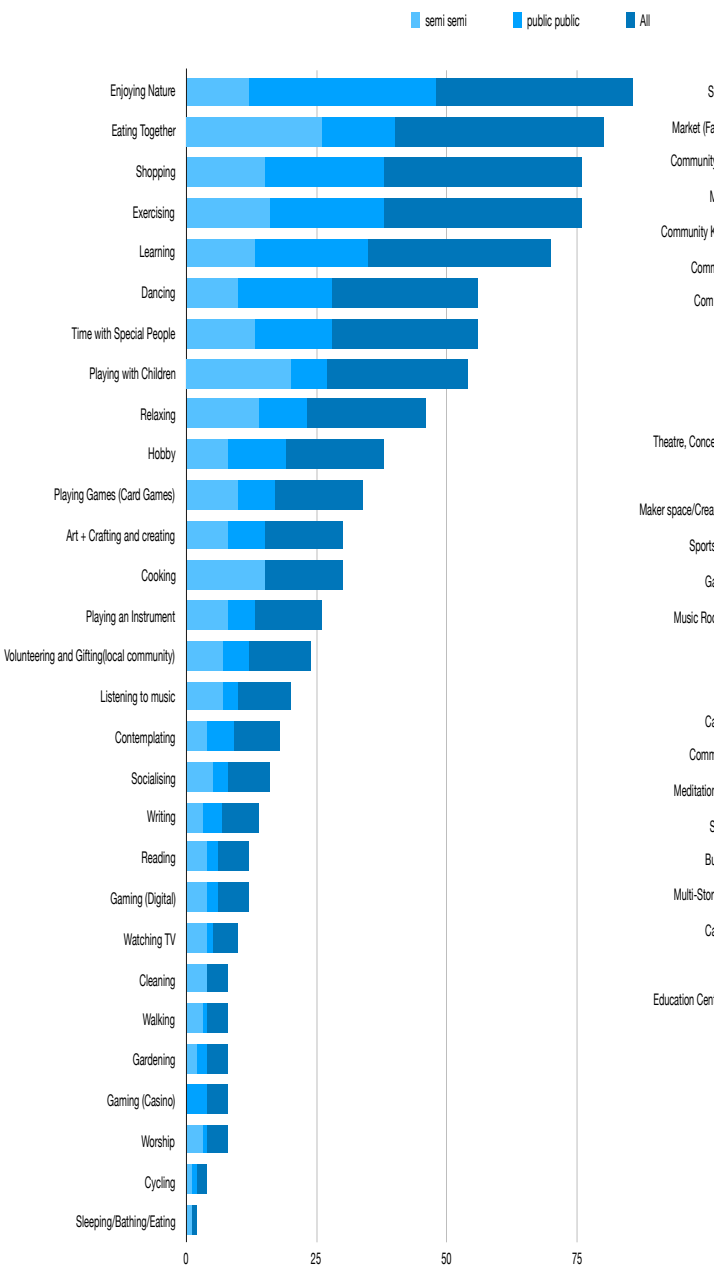


Fig. 4.2 Activities overall results

Features overall results
(preferred in semi-public, public and both spaces)

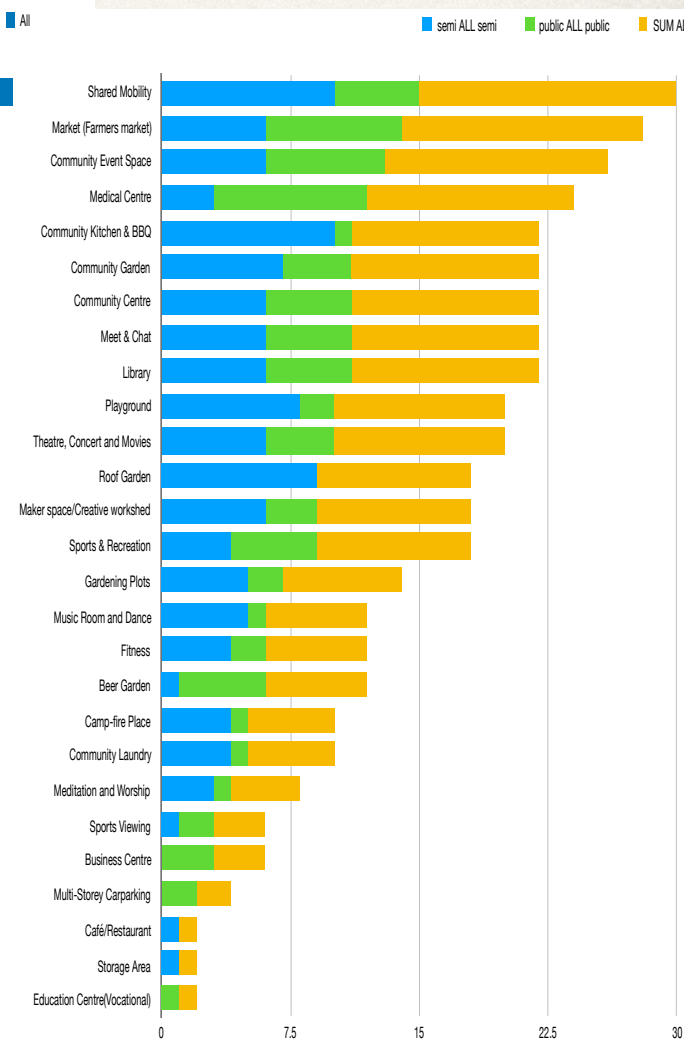


Fig. 4.3 Features overall results

Selections of charrette results for Co+3 (applicable to Co-living Masterplan)



Selected Features (in descending priorities):

Shared Mobility
Market (Farmers market)
Community Event Space
Medical Centre
Community Kitchen & BBQ
Community Garden
Community Centre
Meet & Chat
Library
Playground
Theatre, Concert and Movies
Roof Garden
Maker space/Creative workshed
Sports & Recreation
Gardening Plots
Music Room and Dance
Fitness
Beer Garden
Camp-fire Place



Selected Activities (in descending priorities):

Enjoying Nature
Eating Together
Shopping
Exercising
Learning
Dancing
Time with Special People
Playing with Children
Relaxing
Hobby
Playing Games (Card Games)
Art + Crafting and creating
Cooking
Playing an Instrument
Volunteering and Gifting(local community)
Listening to music
Contemplating
Socialising



Selected Ambiances (in descending priorities):

Social
Shady
Natural
Lively
Comfortable
Peaceful
Familiar
Clean
Busy
Fresh
Light
Calm
Warm
Bush
Cozy
Forest Smell
Flowery
Cool
Enchanting
Zesty
Quiet

Fig. 4.4 Housing Authority findings discussion



Co+2 meta themes findings

- relate to place (place of purpose, encounter and diversity),
- governance (regulate, maintain, operate),
- community,
- shared mobility.

The subsequent findings lead into Co+3 simulation designs for three different urban settings in WA/Aus in combination with an overall design framework (Co+1 Tool Kit) for buildings without limitations and the associations with health and well-being.

Co+3

Age-Appropriate H+
Co-living Dwelling
Scenarios Perth/AU

> North Fremantle

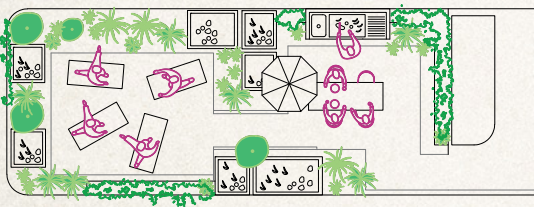
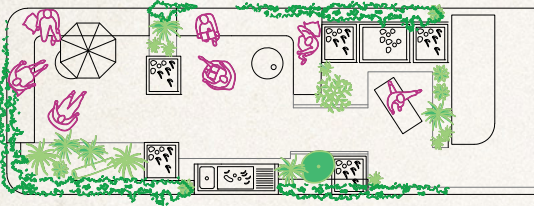
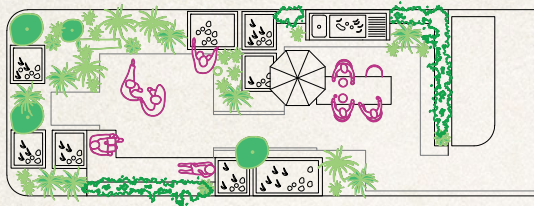
> Fremantle

> Mount Lawley



CO+3 COMMUNITY FEATURES LEGEND

ROOF GARDEN



VEGETATION



CLIMBERS



EDIBLE GARDEN



BEE HIVE



FRUIT TREE



NATIVE SHRUB



NATIVE GRASS



NATIVE SEDGE/FLOWER

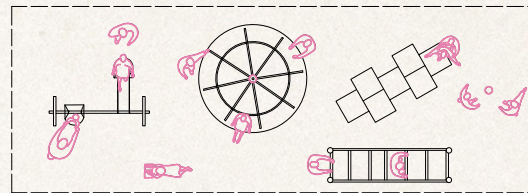


NATIVE SUCCULENT

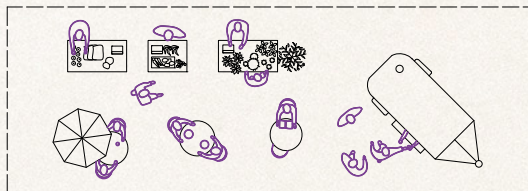


NATIVE GROUND COVER

PLAY-SPACE (playground, nature play, open play space)



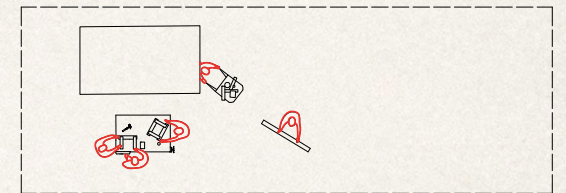
MARKET (market place, cafe, swap & exchange)



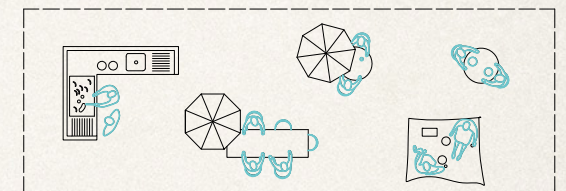
COMMUNITY GARDEN (food production, biophilic connection)



MAKER SPACE & WORK SHED (experimental space)



COMMUNITY KITCHEN & BBQ



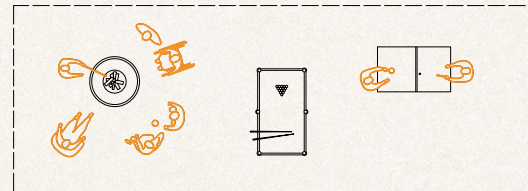
MEDITATION & WORSHIP (sacred space, meditation, well-being)



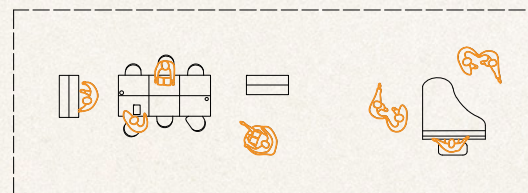
APPLICATION OF LEGEND



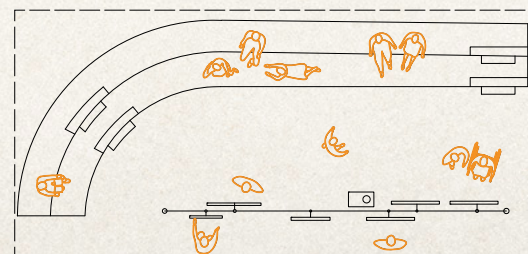
COMMUNITY EVENT SPACE/CENTRE (multi-purpose)



(camp-fire place, meet & chat, games room, child care)

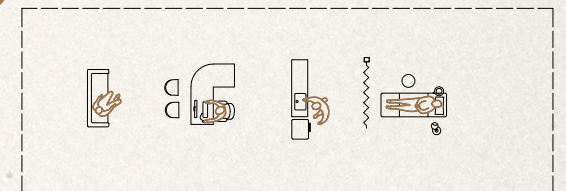


(office, learning centre, community library, dance hall, music room)

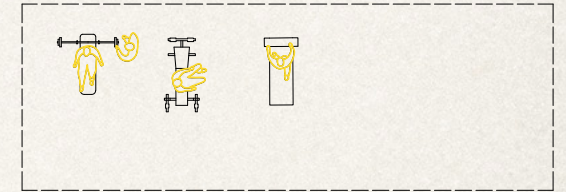


(outdoor theatre, exhibition space)

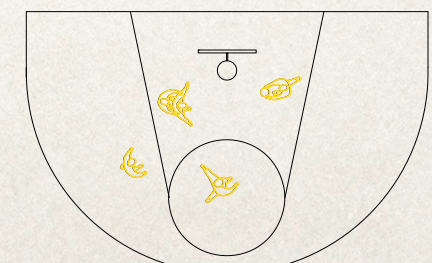
MEDICAL CENTRE & CONSULTATION ROOM



SPORT AND RECREATION



(gym, basketball court, sports therapy area)



Case Study 1

NORTH FREMANTLE

75 Stirling Hwy, North Fremantle WA 6159, Australia



North Freo PLAN OPTION A

Street Level Plan



Case Study 2

FREMANTLE

374/5 Henderson St, Fremantle WA 6160, Australia



1_500 GROUND FLOOR PLAN

CROWN, Lots 374-5 (10) Henderson Street, Fremantle



GROUND FLOOR COLLECTIVE SPACE: (Purpose + Encounter + Diversity)

A hybrid between a courtyard and an undercroft, the ground floor is defined by the main floors overhead and the courtyard at its centre; supplemented by space that can accommodate a wide range of community facilities and services, the layout of which can adapt and respond to the changing needs of the community.

spaces, café, dance hall + music room, artist space, public market. Activities at ground floor spill out onto the public realm connecting with the 'wider community'.

The required space for car-share services is provided as well as bicycle storage facilities, car parking and motorcycle parking

The largest communal space is the central courtyard, providing space for community events while allowing light and visual connectivity. Communal thoroughfares with alcoves and cut outs for informal gathering connect the central courtyard to various smaller indoor-outdoor communal spaces, library

COMMUNITY GARDENS: (P + E + D)

Permaculture, nature and the innate connection that people have with natural environments (Biophilia) is a critical element to consider in the co-living space. The provision of community gardens and "green areas" is not just about the connection with nature for the sense of enjoyment, but the recognition that the natural environment could provide for the community – "to grow food and eat it together".

The 'garden spaces' are inclusive and enable a diversity of people to participate in the activity of producing food via verge gardens, gardening plots, roof-top gardens, vertical gardens, sensory gardens and bee hives. The adaptable layout 'channells' the movement of people in the environment to encourage increase activity and

PLAY-SPACE: (E + D)

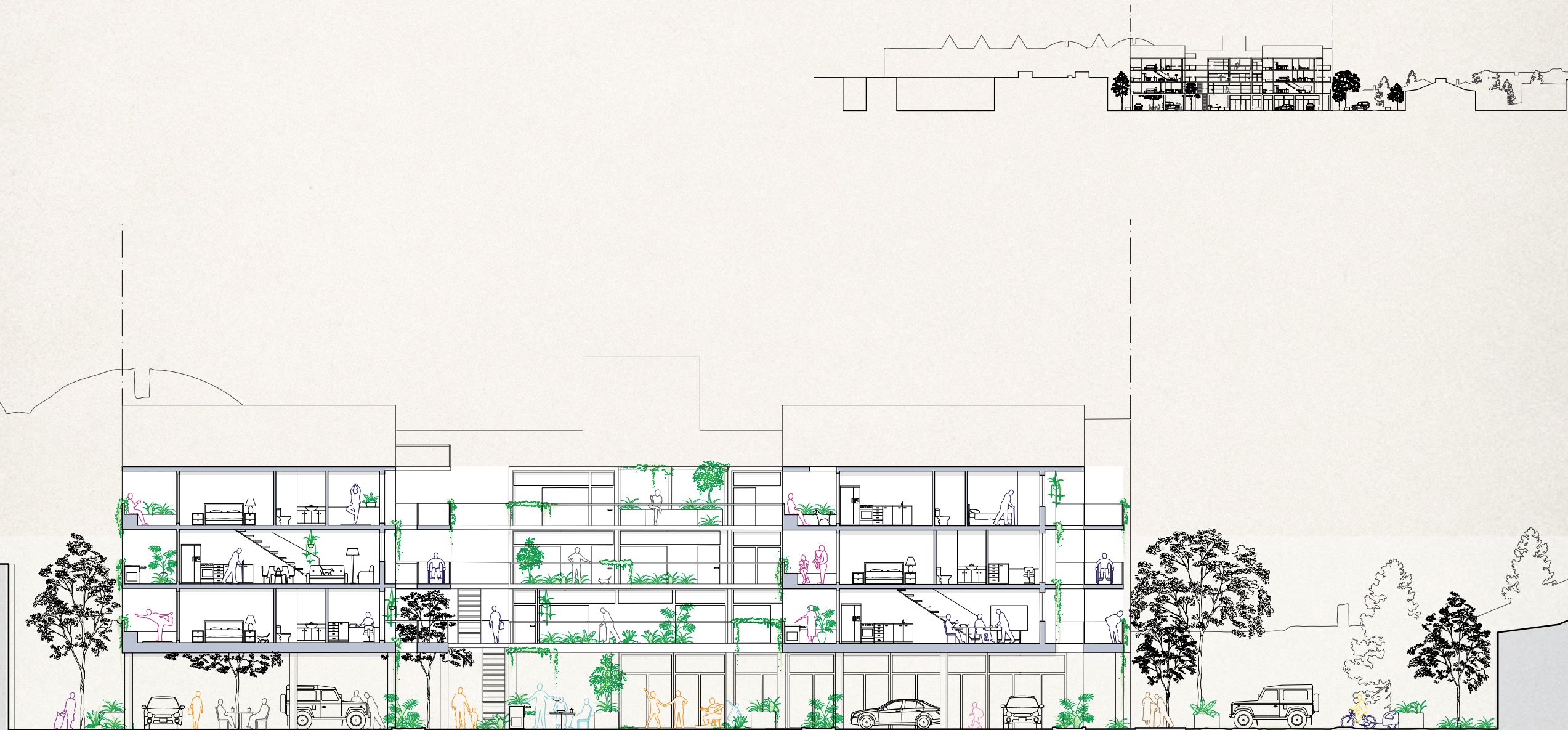
Conversion of existing car-parking space to a play-space, presents opportunity to widen footpaths and enhance the pedestrian environment to reinforce social interaction.

The play-spaces are spaces where families of diverse ages, needs and abilities can gather to play and socialise. The playground was seen as a place that brought people together, was somewhere lively and active with a natural/green element. Having a well-considered play space where children and parents can interact is a key to creating relationships and building a sense of community. Smaller pockets provide intimate and informal play spaces.

MAKER-SPACE + WORKSHED: (P)

Providing a space where people can experiment, meet, make, learn and develop creative projects. Presents opportunities for learning and skill exchange through shared activities and shared interests

1_200 CROSS SECTION B CROWN, Lots 374-5 (10) Henderson Street, Fremantle



● ROOF GARDEN
 ● PLAY-SPACE
 ● MARKET
 ● COMMUNITY GARDEN
 ● COMMUNITY EVENT SPACE/CENTRE
 ● MAKER SPACE & WORK SHED
 ● COMMUNITY KITCHEN & BBQ
 ● MEDITATION & WORSHIP
 ● MEDICAL
 ● SPORT & REC

Case Study 3

MOUNT LAWLEY

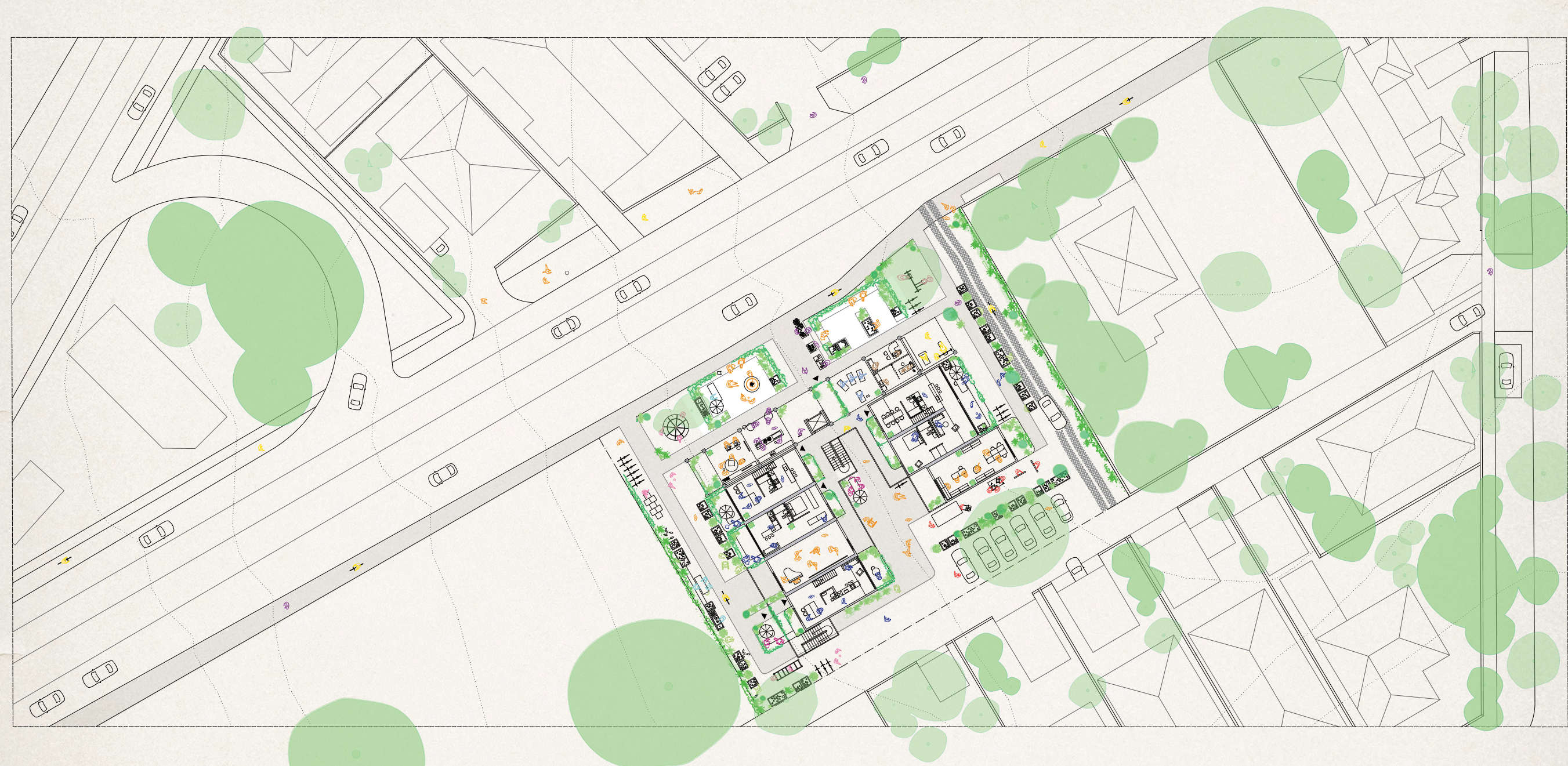
32-38 Guildford Rd, Mount Lawley WA 6050, Australia





1_500 SITE PLAN

WAPC, East Perth, Lots 32-38 Guildford Road



COMMUNITY VERGE: (Purpose + Encounter + Diversity)

The verge is the accessible public face to the street and thereby the community. In residential areas, front yards, verandahs and porches, signal a connection to the street and neighbourhood, they are the places where incidental social interaction occurs as people go about their everyday business. The purpose of a street verge is to: provide a buffer between the road and private property, similarly it can be utilised to build strong relationships with the wider community, and provide a feeling of activity, safety and occupancy.

Elements such as footpaths, varied seating, recreational space, landscaping, BBQ facilities, camp-fire place, community garden plots and play-spaces, contribute to feelings of connectedness, safety and comfort.

COLLECTIVE SPACE: (Encounter + Diversity)

Double storey public/semi-public frontage where activities at ground floor spill out onto the public realm.

A place of business and retail, events, art and music, fitness, well-being and gathering. The interconnected and adaptable spaces are intended to unify the community use, promote diversity of function and emphasise the natural flow of movement from public realm to public place.

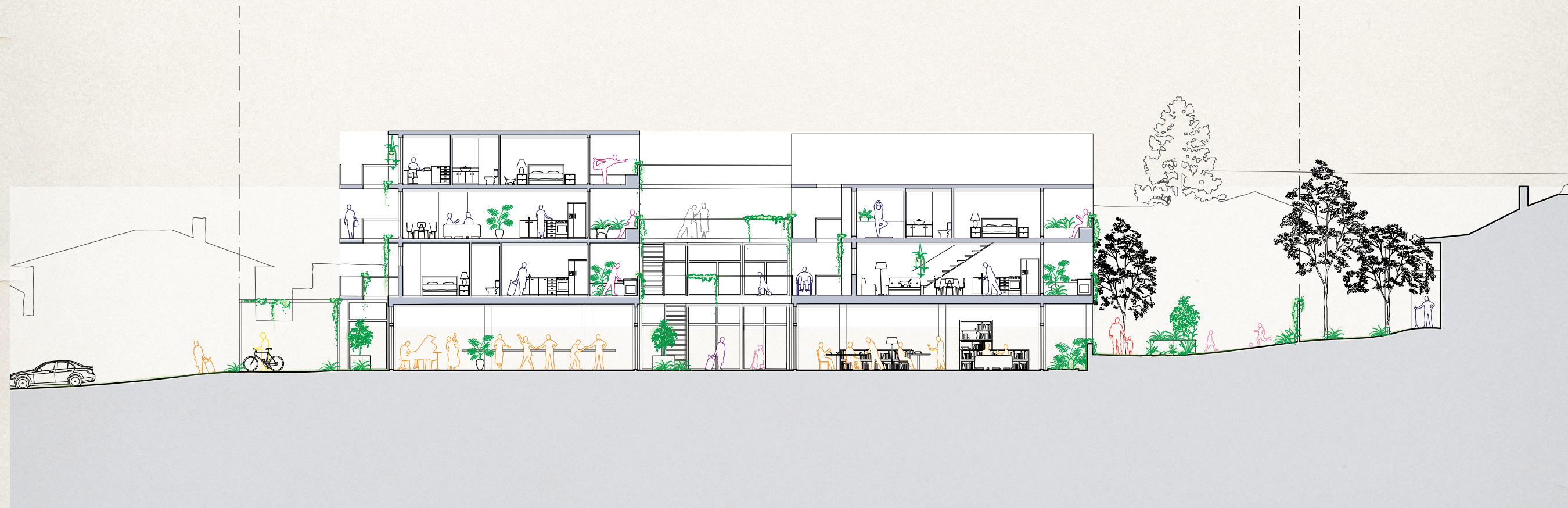
MARKET SPACE: (Encounter + Diversity)

Indoor-outdoor marketplace and cultural space. Local production, farmers market, coffee shop, food vans, alfresco dining - wider footpaths, swap and exchange.

This space was seen as a physical enabler to establish ties with wider community – "Market invites the general public into the community...creates a lively atmosphere".

1_200 LONGITUDINAL SECTION

WAPC, East Perth, Lots 32-38 Guildford Road



- ROOF GARDEN
- PLAY-SPACE
- MARKET
- COMMUNITY GARDEN
- COMMUNITY EVENT SPACE/CENTRE
- MAKER SPACE & WORK SHED
- COMMUNITY KITCHEN & BBQ
- MEDITATION & WORSHIP
- MEDICAL
- SPORT & REC



obrigado IAPS

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29 Nov 2019 Pelotas | Brazil

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